

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites “the ratio of active silver braze powder having a particle diameter of 10 micron to 100 micron is 90% or more”, however, it is unclear as to what this ratio is relative to; in other words when reciting a ratio another quantity must be comparatively recited such as the “the ratio of active silver braze powder having a particle diameter of 10 micron to 100 micron to particles not having a diameter of 10 micron to 100 micron is 90% or more”. For the purposes of examination it is assumed to mean such (or simply, the **percentage** of active silver braze powder having a particle diameter of 10 micron to 100 micron is 90% or more).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshiaki et al. (Japanese Publication No. 2000-281460) in view of Vollmer et al. (US Patent No. 6,149,051).

Toshiaki et al. teach a brazed product and a metallic powder brazing material for bonding between a ceramic member and a metal member. The powder is a silver-copper eutectic alloy powder with a joining material of titanium or zirconium. The powder is deposited overlapping the portion to be brazed and the members are heated in order to melt the powder and cooled in order complete the braze (paragraphs [0006], [0010] and [0017]). The claims differ from Toshiaki et al. in calling for the use of a binder material, however it would have been obvious in the art that a binder could be used to assist adhering the powdered braze material because Vollmer et al. teach a brazing method wherein a binder may optionally be used to better adhere the powdered brazing material to base material before bonding (column 5, lines 15-27) thereby preventing the powdered brazing material being falling off or blown away from the members.

In regard to claim 2, Toshiaki et al. teach that the powder may be produced by atomization (paragraph [0012]). It would have been obvious to choose an average particle diameter around 50 microns (assuming a Gaussian distribution) such that the percentage of particles having a diameter between 10 and 100 micrometers would be greater than 90% because Toshiaki et al. teach the powder should have an average particle diameter between 1-85 micrometers

(paragraph [0015]) and that the maximum particle diameter is 100 micrometers or less (paragraph [0019]).

In regard to claim 3, Toshiaki et al. teach that this powder is designed for bonding copper plates and aluminum nitrate boards in semiconductor devices because ceramics excel at heat dissipation (being a heat sink) (paragraphs [0002] and [0003]).

In regard to claim 4, Toshiaki et al. in view of Vollmer et al. teach a part for brazing made of a ceramic or metal wherein by applying a binder and spreading a silver/copper/titanium brazing powder with subsequent heating and cooling (as applied to claim 1) the metal part may be joined to a ceramic part or vice versa in order to produce a brazed product. It is unclear however whether the powder is deposited firmly onto a binder as required in this claim. However, such would have been obvious in the art in order to ensure that the deposited powder is effectively embedded into the binder so that the powder effectively adhere into the binder thereby reducing the chances of the powder from fall off or blown away.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas P. D'Aniello whose telephone number is (571)270-3635. The examiner can normally be reached on Monday through Thursday from 8am to 5pm (EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Chuan Yao can be reached on (571) 272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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NPD

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